obstipata, Fb. (= *fluviata*, Hb.); *Ptychopoda fractilineata*, Zell., and *Acidalia ochroleucata*, H.-S.

On November 2nd at Ludd I found *Rhodometra sacraria*, Linn., and *Eupithecia centaureata*, Schiff.

Of the Noctuidæ only a few have yet been identified, and I am obliged to Mr. George Talbot for notes upon them.

Cucullia chamomillæ, Schiff. One specimen hovering round flowers in a tent at 6 p.m., January 2nd, and one at light the same evening. "This is probably a form of ab. *calendulæ*, Tr., which may prove to be a local race."

The following were taken at light in January at Haifa:

Plusia gamma, L. "An unusually grey form, nearer in tone to the American *P. californica* than to typical *gamma*. This may be a race."

Amathes (= *Orthosia*, O. of Stgr.'s Catalogue) *kindermanni*, F. var. *pauli*, Stgr.

Eumichtis (= *Hadena*, Schrk. of Stgr.'s Catalogue) *solieri*, Boisd. "An extra rich dark form; have only seen the white stigma in this and another Syrian specimen—? racial."

Of the smaller moths I have been fortunate in finding two new species—*Alucita parca*, Meyr., sp. nov., one at Haifa, 29 : vi : '19, at rest on a tent roof; and *Platyedra cruenta*, Meyr., sp. nov., Haifa, 6 : xii : '19, at light.

(To be continued.)

CONTRIBUTIONS TO OUR KNOWLEDGE OF THE BRITISH BRACONIDÆ.

By G. T. Lyle, F.E.S.

(Continued from p. 186.)

Microdus rufipes, Nees.*

Easily recognised by the extensive sculpture on the abdomen, segments 1, 2, and part of 3 being distinctly striolated; legs, including the coxæ, testaceous, only the hind and middle tarsi and tips of hind tibiæ being dark; terebra as long as the body without the head.

Harwood has a male taken in a Colchester garden July 24th, 1914, and in the Dale Collection is a pair from Devon. In June, 1916, I reared a pair from New Forest larvæ of *Tortrix variegana*. Two males and two females from Darenth Wood are in Fitch's Collection, and also the male bred by Elisha from *Coleophora gryphipennella*, July 31st, 1882. †

* 'Mon.,' vol. i, p. 146.
† 'Trans. Entom. Soc.,' 1885, p. 275.

The cocoon is white papyraceous, and so thin that the metamorphoses of the insect within are plainly visible; in my examples the cocoons were constructed within leaves rolled by the hosts.

Microdus mediator, Nees.*

Up to the present included in our British list on the strength of a single female taken by Fitch at Maldon, August 11th, 1870, and described by Marshall.† This specimen is still in good condition. The species is very close to *lugubrator*, Ratry.‡; indeed, little but size seems to separate the two. Nees gives the length of *mediator* as 4½ mm., which is far larger than any of our British examples, none of which exceed 3 mm.—a figure agreeing more closely with Ratryeburg's species. Five specimens taken by Dale (one marked "G. W.," the others without data) and erroneously named by him *cingulipes* are certainly of the same species as the insect in the Fitch Collection. I reared a female from an unknown host, July 22nd, 1908, and beat a second from Douglas Fir, in the New Forest, August 31st, 1912.

All these examples have the first segment of the abdomen somewhat coarsely striolate, second stippled, coriaceous, and third exhibiting faint indications of the same. Antennæ 28-jointed (excepting in two cases, where the number is 29), terebra slightly shorter than abdomen, valves subclavate; second cubital cell subquadrate, irregular, wings infumated (considerable variation is shown in the tint of the wings, but the age of the specimens may have something to do with this), nervures and stigma fuscous. The male, hitherto unknown, appears scarcely to differ from the female, excepting, of course, in the lack of terebra and the usual rather narrower abdomen.

Microdus rugulosus, Nees.§

The only British record is that of Curtis ('Guide,' 2nd ed., col. 116). Four specimens so named in the Dale Collection must all be referred to the genus *Earinus* (see *E. transversus*).

Genus 4, *Earinus*, Wesm.‖

Wesmael invented this genus to receive those species, previously included in *Microdus*, having the first cubital cell divided from the first discoidal by a distinct nervure. The character, rightly considered by Marshall to be of no more than sectional or specific value, is in itself unreliable, for while I have seen

* 'Mon.,' vol. i, p. 146.
† 'Trans. Entom. Soc.,' 1885, p. 276.
‡ 'Ich. de Foest.,' vol. iii, p. 45.
§ 'Mon.,' vol. i, p. 148.
‖ 'Nouv. Mem. Ac. Brux.,' 1837, p. 8.

species of *Microdus* with the dividing nervure well marked, others, quite undoubtedly belonging to the genus *Earinus*, have the nervure but faintly indicated or even widely interrupted. It seems to me that the genera may be more certainly separated by the presence or absense of deep mesothoracic sutures. In *Microdus* these sutures are distinctly and deeply marked. while in *Earinus* they are entirely absent or only very feebly indicated. This character was brought to notice by Reinhard. I find also that in *Earinus* the metathorax is much smoother than in *Microdus*.

Table of Species.

(10)	1. Tubercles of first abdominal segment not prominent.	
(9)	2. Third segment of abdomen smooth or at most feebly and partially striolate, and without a *distinct* curved transverse impression.	
(4)	3. Mesothorax and scutellum rufous . .	*nitidulus* var., *thoracicus*, Nees.
(3)	4. Mesothorax and scutellum black.	
(8)	5. Hind coxæ rufous; terebra as long as abdomen or thereabouts.	
(7)	6. Length 7–8½ mm.; hind tibiæ white at base.	*nitidulus*, Nees.
(6)	7. Length 4–4½ mm.; hind tibiæ ochreous at base	*ochropes*, Curtis.
(5)	8. Hind coxæ black, terebra as long as body	*delusor*, Wesm.
(2)	9. Third abdominal segment striolate and with a very noticeable curved transverse impression	*transversus*, sp. nov.
(1)	10. Tubercles of first abdominal segment prominent	*tuberculatus*, Wesm.

Earinus nitidulus, Nees.*

A large shining species with hyaline wings, the third abscissa of the radius sinuated and the terebra equal in length to the abdomen. Thomson considered this to be the same as *gloriatorius* Paney†; the synonym, however, presents difficulties. All the examples I have seen agree with the original description excepting that the obtuse medial carina on the first abdominal segment is in distinct or wanting, though there is an elongate central depression, on either side of which is a carina, in some cases bifid as mentioned by Nees; these characters are variable and difficult to seize. Marshall's description in the 'Transactions of the Entomological Society' seems to imply that all the tarsi are black, but in all the specimens I have examined only the hind pair are dark. For many years the name was retained in our

* 'Mon.,' vol. i, p. 144.
† 'Faun. Ins. Germ.,' vol. ix, p. 102, t. 17.

British list on the strength of Curtis's record in his 'Guide' (2nd ed., col. 116), and it was not until May 10th, 1897, that a second British example was obtained, being taken by Bignell, at Bickleigh, Devon. In the Cambridge University Museum is a male labelled "British, before 1868, ex col. P. J. Sellby," and a female from the old Philosophical Society Collection. Dale's Collection at Oxford yields three females, one without data, the others "G. W., April 9th, 1894," and "Bournemouth, 13/4/1868" respectively. The usual length would seem to be 7 mm., with a wing expanse of 15 mm., though two of the Oxford females are $8\frac{1}{2}$ mm. in length and expand $16\frac{1}{2}$ mm. These fine examples show distinct traces of a short rudimentary nervure emitted from the middle of the outer side of the second cubital cell, as in the continental genus *Diosphrys*, Foester. Although thought by Wesmael to be distinct, *Microdus thoracicus*, Nees, which has the mesothorax and scutellum red, is now considered to be merely a female variety. Two Oxford and the one Cambridge example are of this form, which to me appears to have the terebra slightly longer and first abdominal segment somewhat smoother than in typical examples.

The variety at first sight greatly resembles *Microdus calculator*, though a glance at the hind tibiæ, which in *calculator* are deep black, will be sufficient to separate the two.

(To be continued.)

ON THE ABUNDANCE OF THE LARVÆ OF *PYRAMEIS ATALANTA*.

By Paymaster-in-Chief Gervase F. Mathew, R.N., F.L.S., F.E.S.

The most noteworthy entomological feature of the present season in this neighbourhood is the extreme abundance of the larvæ of this beautiful butterfly. Almost every patch of nettles exhibits the spun-together leaves which form the tents of the larger ones. But although the larvæ are so plentiful the hibernated perfect insects were rarely seen. I noticed the first on June 14th, one June 18th, and two June 19th. On July 17th I saw a very fresh-looking example, which had probably just emerged, as some of my larvæ at that time had already become pupæ; and on July 29th saw several fresh imagines and one very much worn, and the same day found full-grown, half-grown, and larvæ only a few days old.

But of course these hibernated butterflies must have been on the wing before the date on which I first noticed them, for I was finding full-grown larvæ on July 8th, and the eggs from which they were produced must have been deposited at the end of May or early in June.

I have taken these larvæ over a large area, but they seem to prefer the neighbourhood of houses and farm-yards, and so may almost be looked upon as a domestic species. I have even found them in the centre of the town wherever a few nettles happened to be growing near a wall or upon a rubbish-heap.

Farming about here is not carried on in a very scientific manner, and there are many meadows and rough fields where nettles have been allowed to spring up in large patches, together with numerous spear and other thistles. Larvæ are to be found in all these patches, but are more plentiful in those growing near fences. They also prefer the young plants to those that are old and tall, and liable to be blown about by the wind. They are seldom seen in the beds of dusty nettles growing by the road-side.

In a large field, within five minutes' walk of my house, nettles were very numerous in the early spring, but were cut down about the middle of May. They have now grown up again, and the young and tender shoots are 1½ ft. to 2 ft. high. At the beginning of July they were teeming with larvæ of all sizes, and on the 24th of the month in about an hour I found sixty-five full-grown larvæ and one pupa in this field, and might have taken many more. On the same day I noticed many quite small larvæ and others from a quarter- to half-grown.

The eggs are laid singly and the females take a considerable time in depositing all their ova. They have to be continually moving from place to place to find suitable plants. So many ova are laid one day, then perhaps two or three dull days may intervene, and if this happens often she may take a month or perhaps longer before she has finished laying. This accounts for pupæ and very small larvæ being found the same day.

In the 'Entomologists' Record,' xix, pp. 105–8 for 1907 I made some remarks on the hibernating habits of this species, and among other things wrote: "Some entomologists seem to think that in certain seasons this butterfly is double-brooded, but I fancy this is a mistake caused by the fact that it is a long-lived species and females deposit their ova from June until August, so that the offspring of the same parent may be living as larvæ, pupæ, or even imagines at the same times." I should have said that they commence to lay their ova according to the state of the weather—from the middle of April, in early seasons, to towards the end of July.

The young larvæ live in a little house which is formed of a single leaf, carefully turned down and fastened along its edge, and with a small opening at the point through which the larva thrusts its head and eats portions of its own home or the adjoining leaves. When very young they content themselves with nibbling little blotches into the cuticle. The full-grown larvæ construct large tents or caves, composed of several leaves